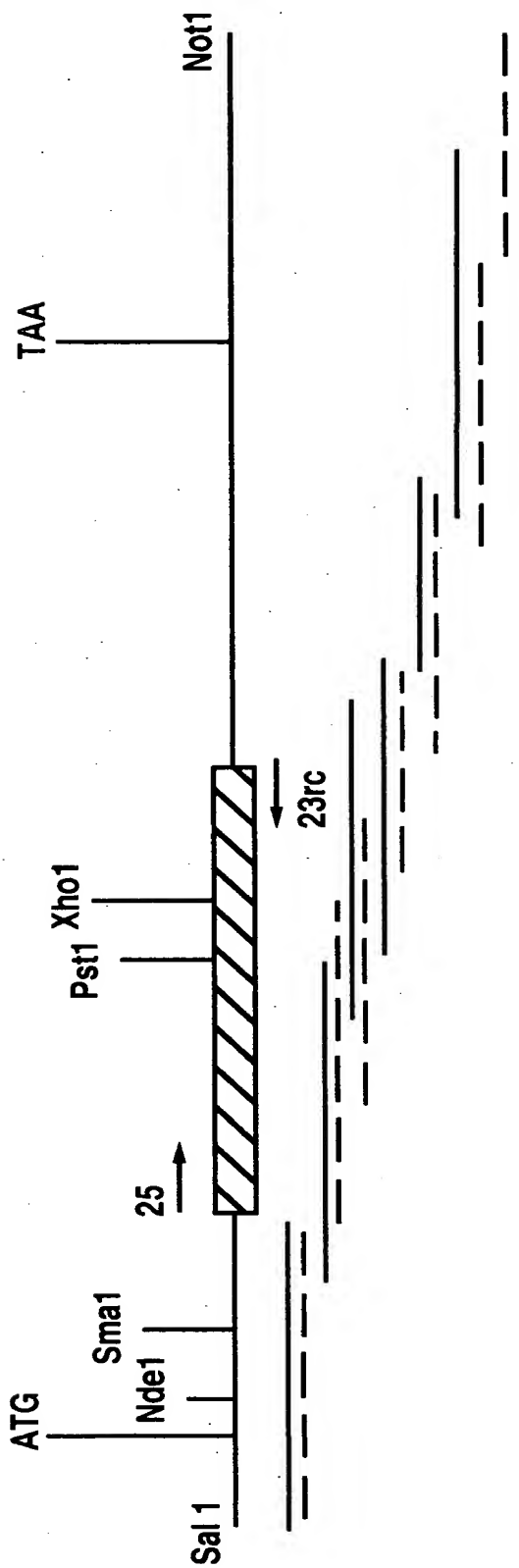

FIG. 1

FIG. 2A

```
   1 gtcgacccacgcgtccgctcaggaccttgaaaggctcaggaagaacaaccctTGAgcacc
  61 tcagcactcagcATGTTCCTCGCTACGTTCAAGCTGTGTGCTGGAAGCTCCTATAGACAT
                 MetPheLeuAlaThrPheLysLeuCysAlaGlySerSerTyrArgHis  16

 121 ATGCGGAATATGAAAGGATTAAGGCACCAAGCTGTGCTGGCCATTGGCCAAGAGCTCAAC
     MetArgAsnMetLysGlyLeuArgHisGlnAlaValLeuAlaIleGlyGlnGluLeuAsn  36

 181 TGGAGAGCACTGGGGGATTCCAGTCCCGGGTGGATGGGTCAAGTTCGACGTCGGAGCTCT
     TrpArgAlaLeuGlyAspSerSerProGlyTrpMetGlyGlnValArgArgArgSerSer  56

 241 CTGCTTGGTTCTCAACTGGAAGCAACACTCTATAGTGACCAGGAGCTGTCCTACATCCAG
     LeuLeuGlySerGlnLeuGluAlaThrLeuTyrSerAspGlnGluLeuSerTyrIleGln  76

 301 CAGGGAGAGGTGGCTATGCAGAAGGCCTTGGGCATACTCAACAACCAGGAAGGCTGGAAG
     GlnGlyGluValAlaMetGlnLysAlaLeuGlyIleLeuAsnAsnGlnGluGlyTrpLys  96
                                    25
 361 AAGGAAAGCCAGCAGGAGAACGGGGACGAAGTGCTAAGTAAGATGGTGCCAGATGTGGGC
     LysGluSerGlnGlnGluAsnGlyAspGluValLeuSerLysMetValProAspValGly 116

 421 AAGGTGTTTCGCTTGGAGGTGGTGGTAGACCAGCCCATGGACAGACTCTATGAAGAACTT
     LysValPheArgLeuGluValValValAspGlnProMetAspArgLeuTyrGluGluLeu 136

 481 GTGGACCGCATGGAGGCCATGGGAGAGTGGAACCCAAATGTCAAGGAGATCAAGGTCCTG
     ValAspArgMetGluAlaMetGlyGluTrpAsnProAsnValLysGluIleLysValLeu 156

 541 CAGAGGATTGGAAAAGACACGGTCATCACTCATGAGCTGGCTGCGGCGGCAGCAGGCAAC
     GlnArgIleGlyLysAspThrValIleThrHisGluLeuAlaAlaAlaAlaAlaGlyAsn 176

 601 CTGGTGGGGCCTCGAGACTTCGTGAGCGTGCGCTGTACCAAGCGCAGAGGTTCCACCTGT
     LeuValGlyProArgAspPheValSerValArgCysThrLysArgArgGlySerThrCys 196

 661 GTGCTGGCAGGCATGGCCACACATTTTGGGGAGATGCCGGAGCAGAGTGGTGTCATCAGA
     ValLeuAlaGlyMetAlaThrHisPheGlyGluMetProGluGlnSerGlyValIleArg 216
                                    45
 721 GCTGAACACGGCCCCACCTGCATGGTGCTTCATCCACTGGCTGGAAGTCCCTCCAAGACT
     AlaGluHisGlyProThrCysMetValLeuHisProLeuAlaGlySerProSerLysThr 236
                                    23
 781 AAACTCACTTGGCTGCTCAGTATTGACCTGAAGGGGTGGCTGCCGAAGACAATCATCAAC
     LysLeuThrTrpLeuLeuSerIleAspLeuLysGlyTrpLeuProLysThrIleIleAsn 256
```

FIG. 2B

```
841 CAGGTCCTATCGCAGACCCAGATAGAGTTCGCCAACCACCTGCGCAAGCGCCTGGAAGCC
    GlnValLeuSerGlnThrGlnIleGluPheAlaAsnHisLeuArgLysArgLeuGluAla 276

901 AGCCCTGCCTCTGAGGCCCAGTGTTAAggactgtccaccacattgacctgcaaatcattg
    SerProAlaSerGluAlaGlnCysEnd                                  284

 961 gaagctctcacaggaagcctgcaagtctgtccatcttcagctaacagcatcgggaggggt
1021 ggtagtcaggagacactaggactgactggtaaaatcaggatcagcaaaatagaaatgagg
1081 cttagaataaaagttctctagtgtctcccactgcatagctgtgaaggctaagggataagt
1141 agctatgaaacctttcatctaggcttgtatatgctgacctaaaagacaccagcagctacg
1201 aacaggggatgctaaggatcgggaactgttgtcttaccagctccaaatgtcactacctga
1261 aggcagtgtgcacacaaagcaaggtcttgcctaggaaactctgtaaaagttctcctctgt
1321 aaaaggccagaacttgaatgaaactacctacaaagggcctttccagagtattccaacttt
1381 tctctgaggagaaatgaaaccatcattgtgccgacttccctactaatcccatgacAATAA
1441 AgaacatacatAAAAAAAAAAAAAAA
```

FIG. 3A

Human steroidogenic acute regulatory protein (StAR) mRNA.

Length = 1605

Identities = 104/134 (77% identity), mouse segment 73-206 to human segment 127-260:

```
Mouse:    73 ATGTTCCTCGCTACGTTCAAGCTGTGTGCTGGAAGCTCCTATAGACATATGCGGAATATG 132
             ||| | || || || |||||||||||| ||||| |||||||| ||||| ||||| || |||
Human:   127 ATGCTGCTAGCGACATTCAAGCTGTGCGCTGGGAGCTCCTACAGACACATGCGCAACATG 186

Mouse:   133 AAAGGATTAAGGCACCAAGCTGTGCTGGCCATTGGCCAAGAGCTCAACTGGAGAGCACTG 192
             || ||  | ||||| || |||||| |||||||  |||| ||||| ||| |||| || |||
Human:   187 AAGGGGCTGAGGCAACAGGCTGTGATGGCCATCAGCCAGGAGCTGAACCGGAGGGCCCTG 246

Mouse:   193 GGGGATTCCAGTCC  206
             ||||  |||  ||
Human:   247 GGGGGCCCCACCCC  260
```

Identities = 612/722 (84% identity); mouse segment 210-931 to human segment 267-988:

```
Mouse:   210 GTGGATGGGTCAAGTTCGACGTCGGAGCTCTCTGCTTGGTTCTCAACTGGAAGCAACACT 269
             ||||||   || ||||| || |||||||||| || |||||||  |||||||  || ||
Human:   267 GTGGATTAACCAGGTTCGGCGGCGGAGCTCTCTACTCGGTTCTCGGCTGGAAGAGACTCT 326

Mouse:   270 CTATAGTGACCAGGAGCTGTCCTACATCCAGCAGGGAGAGGTGGCTATGCAGAAGGCCTT 329
             ||| |||||||||||||| ||||  |||||||||| |||| ||| ||||||||||||||
Human:   327 CTACAGTGACCAGGAGCTGGCCTATCTCCAGCAGGGGGAGGAGGCCATGCAGAAGGCCTT 386

Mouse:   330 GGGCATACTCAACAACCAGGAAGGCTGGAAGAAGGAAAGCCAGCAGGAGAACGGGGACGA 389
             |||||| || | |||||| || |||||||||||||| || |||||||| || |||||| |
Human:   387 GGGCATCCTTAGCAACCAAGAGGGCTGGAAGAAGGAGAGTCAGCAGGACAATGGGGACAA 446

Mouse:   390 AGTGCTAAGTAAGATGGTGCCAGATGTGGGCAAGGTGTTTCGCTTGGAGGTGGTGGTAGA 449
             |||| | |||||  |||| |||||||||||||||||||| ||  ||||||| ||||| ||
Human:   447 AGTGATGAGTAAAGTGGTCCCAGATGTGGGCAAGGTGTTCCGGCTGGAGGTCGTGGTGGA 506
```

FIG. 3B

```
Mouse:   450 CCAGCCCATGGACAGACTCTATGAAGAACTTGTGGACCGCATGGAGGCCATGGGAGAGTG 509
             ||||||||||||  ||  ||||||||||  ||  |||||  ||||||||  ||  |||||  |||||
Human:   507 CCAGCCCATGGAGAGGCTCTATGAAGAGCTCGTGGAGCGCATGGAAGCAATGGGGGAGTG 566

Mouse:   510 GAACCCAAATGTCAAGGAGATCAAGGTCCTGCAGAGGATTGGAAAAGACACGGTCATCAC 569
             ||||||  ||||||||||||||||||||||||||||  |||  ||||||||  ||  ||||  ||
Human:   567 GAACCCCAATGTCAAGGAGATCAAGGTCCTGCAGAAGATCGGAAAAGATACATTCATTAC 626

Mouse:   570 TCATGAGCTGGCTGCGGCGGCAGCAGGCAACCTGGTGGGGCCTCGAGACTTCGTGAGCGT 629
             |||  ||||||||||  |  |||||||||  ||||||||||||||  ||  |||||  ||||||||
Human:   627 TCACGAGCTGGCTGCCGAGGCAGCAGGAAACCTGGTGGGGCCCCGTGACTTTGTGAGCGT 686

Mouse:   630 GCGCTGTACCAAGCGCAGAGGTTCCACCTGTGTGCTGGCAGGCATGGCCACACATTTTGG 689
             |||||||  ||||||||  ||||  ||||||||||||||||  |||||||  ||||  |  ||  ||
Human:   687 GCGCTGTGCCAAGCGCCGAGGCTCCACCTGTGTGCTGGCTGGCATGGACACAGACTTCGG 746

Mouse:   690 GGAGATGCCGGAGCAGAGTGGTGTCATCAGAGCTGAACACGGCCCCACCTGCATGGTGCT 749
             |  |  |||||  |||||||  ||||||||||  ||  ||  |||||  |||||  ||||||||||
Human:   747 GAACATGCCTGAGCAGAAGGGTGTCATCAGGGCGGAGCACGGTCCCACTTGCATGGTGCT 806

Mouse:   750 TCATCCACTGGCTGGAAGTCCCTCCAAGACTAAACTCACTTGGCTGCTCAGTATTGACCT 809
             |||  ||  ||||||||||||||||  |||||  |||||  ||  |||||  |||||  ||  |||||
Human:   807 TCACCCGTTGGCTGGAAGTCCCTCTAAGACCAAACTTACGTGGCTACTCAGCATCGACCT 866

Mouse:   810 GAAGGGGTGGCTGCCGAAGACAATCATCAACCAGGTCCTATCGCAGACCCAGATAGAGTT 869
              ||||||||||||||  ||||  ||||||||||||||||  ||  |||||||||  |  ||  ||
Human:   867 CAAGGGGTGGCTGCCCAAGAGCATCATCAACCAGGTCCTGTCCCAGACCCAGGTGGATTT 926

Mouse:   870 CGCCAACCACCTGCGCAAGCGCCTGGAAGCCAGCCCTGCCTCTGAGGCCCAGTGTTAAGG 929
              |||||||||||||||||||||||||  ||  ||||||||||||  |||  |||||  |  |
Human:   927 TGCCAACCACCTGCGCAAGCGCCTGGAGTCCCACCCTGCCTCTGAAGCCAGGTGTTGAAG 986

Mouse:   930 AC          931
             ||
Human:   987 AC          988
```

Identities = 18/19 (94% identity), mouse segment 970-988 to human segment 1051-1069

```
Mouse:   970 ACAGGAAGCCTGCAAGTCT     988
             ||  ||||||||||||||||||
Human: 1051  ACTGGAAGCCTGCAAGTCT    1069
```

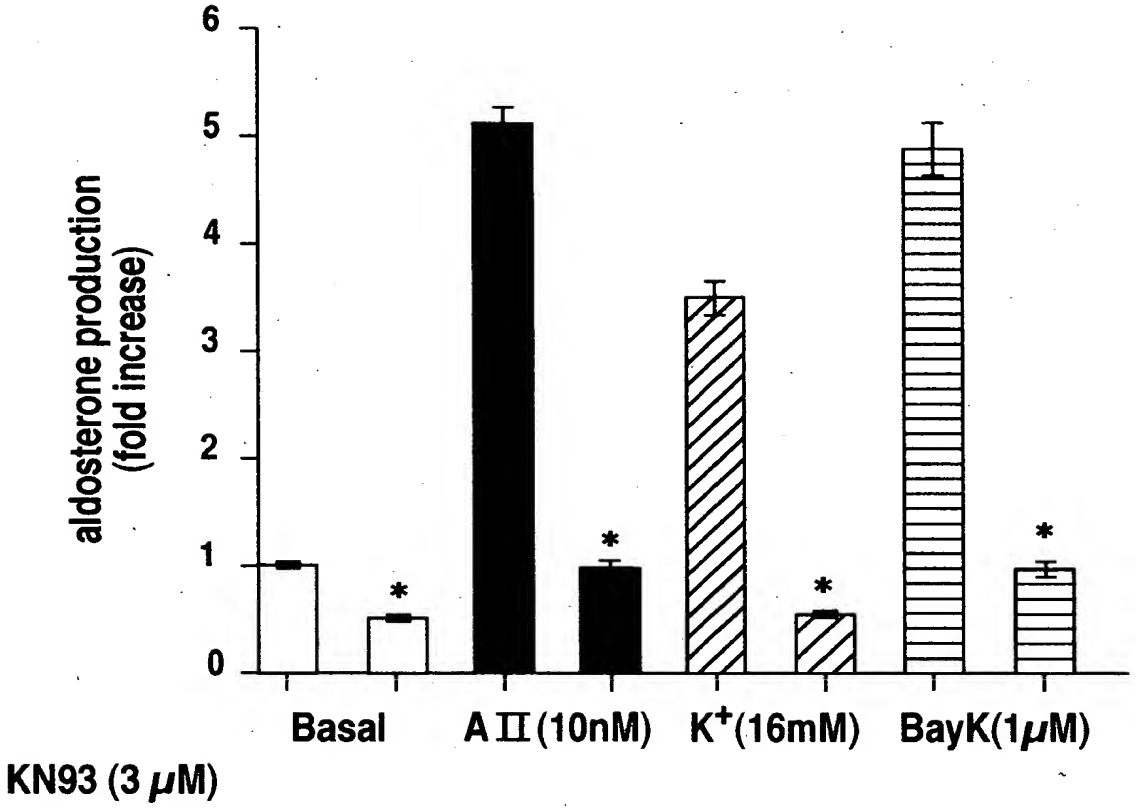

FIG. 4

FIG. 5

					C1	C2	
Bovine	1	MLLATFKLCA	GSSYRHvRsM	KGLqQQAVLA	IGQELNRRAL	GGPaPaaWIN	50
Human		MLLATFKLCA	GSSYRHMRNM	KGLRQQAVMA	IsQELNRRAL	GGPtPstWIN	
Mouse		MFLATFKLCA	GSSYRHMRNM	KGLRhQAVLA	IGQELNWRAL	GdssPg.Wmg	
Ovine		....	....	....	....	....	
Consensus		MLLATFKLCA	GSSYRHMRNM	KGLRQQAVLA	IGQELNRRAL	GGP-P--WIN	
		A	CK				
Bovine	51	QVRRRgSLLG	SQLEDpLYSD	QELAhIQQGE	EAMQrALGIL	kdQEGWKKES	100
Human		QVRRRSSLLG	SrLEETLYSD	QELAYlQQGE	EAMQKALGIL	sNQEGWKKES	
Mouse		QVRRRSSLLG	SQLEaTLYSD	QELsYIQQGE	vAMQKALGIL	nNQEGWKKES	
Ovine		....	....	....	....	......KKEn	
Consensus		QVRRRSSLLG	SQLE-TLYSD	QELAYIQQGE	EAMQKALGIL	-NQEGWKKES	
Bovine	101	rQaNGDEVLS	KVIPDVGKVF	RLEVVVDQPM	ERLYEELVER	MEAMGEWNPN	150
Human		qQdNGDkVMS	KVVPDVGKVF	RLEVVVDQPM	ERLYEELVER	MEAMGEWNPN	
Mouse		qQeNGDEVLS	KmVPDVGKVF	RLEVVVDQPM	DRLYEELVDR	MEAMGEWNPN	
Ovine		rQaNGDEVLS	KVIPDVGKVF	RLEVVVDQPM	ERLYEELVER	MEAMGEWNPs	
Consensus		-Q-NGDEVLS	KV-PDVGKVF	RLEVVVDQPM	ERLYEELVER	MEAMGEWNPN	
						A	
Bovine	151	VKEIKVLQKI	GKDTVITHEL	AAEvAGNLVG	PRDFVSVRCT	KRRGSmCVLA	200
Human		VKEIKVLQKI	GKDTfITHEL	AAEAAGNLVG	PRDFVSVRCa	KRRGStCVLA	
Mouse		VKEIKVLQrI	GKDTVITHEL	AAaAAGNLVG	PRDFVSVRCT	KRRGStCVLA	
Ovine		VKEIKVLQKI	GKDTIITHEL	AAEAAGNLVG	PRDFVrVRCT	KRRGSmCVLA	
Consensus		VKEIKVLQKI	GKDTVITHEL	AAEAAGNLVG	PRDFVSVRCT	KRRGS-CVLA	
					CD C		
Bovine	201	GMATLYeEMP	qQKGVIRAEH	GPTCMVLrPL	AGSPSrTKLT	WLLSIDLKGW	250
Human		GMdTdFgnMP	eQKGVIRAEH	GPTCMVLHPL	AGSPSKTKLT	WLLSIDLKGW	
Mouse		GMAThFgEMP	eQsGVIRAEH	GPTCMVLHPL	AGSPSKTKLT	WLLSIDLKGW	
Ovine		GtATLYeEMP	qQKGVIR...	....	....	....	
Consensus		GMATL--EMP	-QKGVIRAEH	GPTCMVLHPL	AGSPSKTKLT	WLLSIDLKGW	
Bovine	251	LPKTIINQVL	SQTQVDFANH	LRKRLEScPA	lEARC 285		
Human		LPKsIINQVL	SQTQVDFANH	LRKRLEShPA	SEARC		
Mouse		LPKTIINQVL	SQTQIEFANH	LRKRLEasPA	SEAqC		
Ovine		....	....	....	.....		
Consensus		LPKTIINQVL	SQTQVDFANH	LRKRLES-PA	SEARC		